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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/594,121

11/28/2006

Jeffrey Wilson Thornton

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EXAMINER

HEINCER, LIAM J

ART UNIT

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/594,121	<b>Applicant(s)</b> THORNTON ET AL.	
	<b>Examiner</b> Liam J. Heincer	<b>Art Unit</b> 1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 25 September 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) 5-7 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4 and 8-16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>5/07 and 9/06</u> .   | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Information Disclosure Statement***

The information disclosure statement filed May 2, 2007 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each cited foreign patent document; each non-patent literature publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. It has been placed in the application file, but the information referred to therein has not been considered.

### ***Specification***

The disclosure is objected to because of the following informalities: There is a typo in the title such that it reads "Process Dor Gelatinising" rather than "Process For Gelatinising".

Appropriate correction is required.

### ***Claim Objections***

Claims 5-7 objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim cannot depend from another multiple dependent claim. Claims 5-7 are multiple dependent claims that depend from claim 3 which is a multiple dependent claim. See MPEP § 608.01(n). Accordingly, the claims 5-7 not been further treated on the merits.

Claim 15 objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claim 15 is directed towards starch or a starch product (line 1), while claim 12 from which it depends is directed towards a starch product/granulate of a thermoplastic starch composition (line 1). Therefore claim 15 is broader in scope than the claim from which it depends.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 9 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Considering Claim 9: Claim 9 claims the carbohydrate polymer as being 100% of the total weight of the starch and the additive. However, in claim 1, from which claim 9 depends, starch or a derivative of starch is a required component of the composition. By claiming 100% by weight of the carbohydrate polymer, the scope of the claim becomes unclear, as it is not clear whether starch is a required component.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 3, 4, and 9-11 are rejected under 35 U.S.C. 102(e) as being anticipated by Fischer et al. (US 2007/0006875).

The applied reference has a common assignee and one common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference,

it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

Considering Claim 1: Fischer et al. teaches a process for gelatinizing starch (§0001) comprising subjecting starch and an aldehyde functional carbohydrate with greater than 2% of the monomers having aldehyde groups (§0010-12) to thermo-mechanical treatment (§0019).

Considering Claims 3 and 4: Fischer et al. teaches 5 to 25% of the monomers having aldehyde groups (§0012, Table 1).

Considering Claim 9: Fischer et al. teaches the carbohydrate as being present in an amount of 2 to 50 weight percent (§0013, Table 1).

Considering Claim 10: Fischer et al. teaches the thermo mechanical treatment as being at a temperature between 80 and 100 °C (§0019, Example 1).

Considering Claim 11: Fischer et al. teaches the thermo mechanical treatment as preferably being carried out continuously (§0020).

Claims 12 and 15 are rejected under 35 U.S.C. 102(e) as being anticipated by Fischer et al. (US 2007/0006875).

The applied reference has a common assignee and one common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

Considering Claim 12: Fischer et al. teaches a granulate of thermoplastic starch (§0022) comprising an aldehyde functional carbohydrate with greater than 2% of the

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monomers having aldehyde groups (§0010-12) in an amount of 2 to 50 weight percent (§0013, Table 1), glycerol and water (§0014-15, Table 1).

Considering Claim 15: Fischer et al. teaches adding a polyester to the composition (§0017).

Claim 13 is rejected under 35 U.S.C. 102(e) as being anticipated by Fischer et al. (US 2007/0006875).

The applied reference has a common assignee and one common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

Considering Claim 13: Fischer et al. teaches a shaped starch product (§0022) comprising an aldehyde functional carbohydrate with greater than 2% of the monomers having aldehyde groups (§0010-12) in an amount of 2 to 50 weight percent (§0013, Table 1), glycerol and water (§0014-15, Table 1).

Claim 14 is rejected under 35 U.S.C. 102(e) as being anticipated by Fischer et al. (US 2007/0006875).

The applied reference has a common assignee and one common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

Considering Claim 14: Fischer et al. teaches a blown starch film (§0022) comprising an aldehyde functional carbohydrate with greater than 2% of the monomers having

aldehyde groups (¶0010-12) in an amount of 2 to 50 weight percent (¶0013, Table 1), glycerol and water (¶0014-15, Table 1).

Claim 16 is rejected under 35 U.S.C. 102(e) as being anticipated by Fischer et al. (US 2007/0006875).

The applied reference has a common assignee and one common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

Considering Claim 16: Fischer et al. teaches a starch article (¶0022) comprising a flavor/food component (¶0018) and an aldehyde functional carbohydrate with greater than 2% of the monomers having aldehyde groups (¶0010-12) in an amount of 2 to 50 weight percent (¶0013, Table 1), glycerol and water (¶0014-15, Table 1).

Claims 1 and 9-11 are rejected under 35 U.S.C. 102(b) as being anticipated by Bengs et al. (US Pat. 6,313,105).

Considering Claim 1: Bengs et al. teaches a process comprising subjecting starch and a dialdehyde starch 2:35-45) with a degree of oxidation above 30% by weight/greater than 30% of monomers contain aldehyde groups (abstract) to thermo mechanical treatment (Examples 4, 5, and 10).

Considering Claim 9: Bengs et al. teaches the dialdehyde starch as being using in an amount of 10 to 30 weight percent (Table II).

Considering Claim 10: Bengs et al. teaches the thermo mechanical treatment as occurring at 100 °C (Examples 4 and 5).

Considering Claim 11: Bengs et al. teaches the thermo mechanical treatment as being continuous (Example 10).

Claims 12 and 15 are rejected under 35 U.S.C. 102(b) as being anticipated by Bengs et al. (US Pat. 6,313,105).

Considering Claim 12: Bengs et al. teaches a pellet/granule (5:59-61) comprising starch, between 10 and 30 weight percent of a dialdehyde starch, glycerol and water (Table II). Bengs et al. also teaches the dialdehyde starch 2:35-45) as having a degree of oxidation above 30% by weight/greater than 30% of monomers contain aldehyde groups (abstract).

Considering Claim 15: Bengs et al. teaches adding a lactic acid polymer/polyester (5:12-21).

Claim 13 is rejected under 35 U.S.C. 102(b) as being anticipated by Bengs et al. (US Pat. 6,313,105).

Considering Claim 13: Bengs et al. teaches a shaped starch article (6:3-26) comprising starch, between 10 and 30 weight percent of a dialdehyde starch, glycerol and water (Table II). Bengs et al. also teaches the dialdehyde starch 2:35-45) as having a degree of oxidation above 30% by weight/greater than 30% of monomers contain aldehyde groups (abstract).

Claim 14 is rejected under 35 U.S.C. 102(b) as being anticipated by Bengs et al. (US Pat. 6,313,105).

Considering Claim 14: Bengs et al. teaches a starch film (6:27-28) comprising starch, between 10 and 30 weight percent of a dialdehyde starch, glycerol and water (Table II). Bengs et al. also teaches the dialdehyde starch 2:35-45) as having a degree of oxidation above 30% by weight/greater than 30% of monomers contain aldehyde groups (abstract).

Claim 16 is rejected under 35 U.S.C. 102(b) as being anticipated by Bengs et al. (US Pat. 6,313,105).

Considering Claim 16: Bengs et al. teaches a sausage/food product comprising sausage/food component (6:39-41) and a casing comprising starch, between 10 and 30



weight percent of a dialdehyde starch, glycerol and water (Table II). Bengs et al. also teaches the dialdehyde starch 2:35-45) as having a degree of oxidation above 30% by weight/greater than 30% of monomers contain aldehyde groups (abstract).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 2 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bengs et al. (US Pat. 6,313,105) as applied to claim 1 above, and further in view of Jetten et al. (WO 00/50621).

Considering Claims 2 and 8: Bengs et al. teaches the process of claim 1 as shown above.

Bengs et al. does not teach using a nitroxyl mediated oxidation. However, Jetten et al. teaches using a nitroxy mediated oxidation process (¶0005) for the formation of aldehyde functional starches (¶0010). Bengs et al. and Jetten et al. are analogous art as they are concerned with the same field of endeavor, namely aldehyde functional carbohydrates formed through oxidation. It would have been obvious to a person

having ordinary skill in the art at the time of invention to have used the nitroxy mediation oxidation of Jetten et al. in the process of Bengs et al., and the motivation to do so would have been, as Jetten et al. suggests, the oxidation produces a product with a far higher number of aldehyde groups than carboxyl groups (§10016).

Jetten et al. teaches that they nitroxy mediation oxidation produces carbohydrates with aldehyde groups on the C6 position (§10021).

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bengs et al. (US Pat. 6,313,105) as applied to claim 1 above.

Considering Claim 3: Bengs et al. teaches the process of claim 1 as shown above. Bengs et al. also teaches the oxidation degree as being between 30 and 85% (7:3-5).

Bengs et al. does not teach degree of oxidation as being from 1 to 50%. However, the disclosed range of Bengs et al. overlaps with the claimed range. In the case where the claimed range overlap the disclosed range a prima facie case of obviousness exists. See MPEP § 2144.05.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. See PTO Form 892.

### ***Double Patenting***

Claims 1, 3, 4, and 9-14 are directed to an invention not patentably distinct from claim of commonly assigned US Patent 7,255,732. Specifically, see below.

The U.S. Patent and Trademark Office normally will not institute an interference between applications or a patent and an application of common ownership (see MPEP Chapter 2300). Commonly assigned US Patent 7,255,732, discussed above, would form the basis for a rejection of the noted claims under 35 U.S.C. 103(a) if the commonly assigned case qualifies as prior art under 35 U.S.C. 102(e), (f) or (g) and the conflicting inventions were not commonly owned at the time the invention in this application was made. In order for the examiner to resolve this issue, the assignee can, under 35 U.S.C. 103(c) and 37 CFR 1.78(c), either show that the conflicting inventions

were commonly owned at the time the invention in this application was made, or name the prior inventor of the conflicting subject matter.

A showing that the inventions were commonly owned at the time the invention in this application was made will preclude a rejection under 35 U.S.C. 103(a) based upon the commonly assigned case as a reference under 35 U.S.C. 102(f) or (g), or 35 U.S.C. 102(e) for applications pending on or after December 10, 2004.

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1, 3, 4, and 9-14 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1, 3, 5, and 11-14 of U.S.

Patent No. 7,255,732. Although the conflicting claims are not identical, they are not patentably distinct from each other because:

Considering Claims 1 and 11: Claim 1 of Patent '732 teaches a process for gelatinizing starch by a continuous thermochemical treatment of starch in the presence of a dialdehyde polysaccharide with a degree of oxidation of 2 to 65%/2 to 65% of the monomers have aldehyde groups (Claim 1).

Considering Claims 3 and 4: Claim 5 of Patent '732 teaches the degree of oxidation as being from 5 to 30% (Claim 5).

Considering Claim 9: Claim 3 of Patent '732 teaches amount of the carbohydrate as being 2 to 50% (Claim 3).

Considering Claim 10: Claim 11 of Patent '732 teaches the temperature during treatment as being from 80 to 100°C (Claim 11).

Considering Claim 12: Claim 12 of Patent '732 teaches a granulate of thermoplastic starch that contains 2 to 50 weight percent of a dialdehyde polysaccharide with a degree of oxidation of 3 to 65%, water and a plasticizer that is a polyol or urea (Claim 12).

Considering Claim 13: Claim 13 of Patent '732 teaches a shaped starch product that contains 2 to 50 weight percent of a dialdehyde polysaccharide with a degree of oxidation of 3 to 65%, water and a plasticizer that is a polyol or urea (Claim 13).

Considering Claim 14: Claim 14 of Patent '732 teaches a blown starch film that contains 2 to 50 weight percent of a dialdehyde polysaccharide with a degree of oxidation of 3 to 65%, water and a plasticizer that is a polyol or urea (Claim 14).

### ***Correspondence***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Liam J. Heincer whose telephone number is 571-270-3297. The examiner can normally be reached on Monday thru Friday 7:30 to 5:00 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Eashoo can be reached on 571-272-1197. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Mark Eashoo, Ph.D./

LJH

Supervisory Patent Examiner, Art Unit 1796

August 13, 2008

29-Aug-08